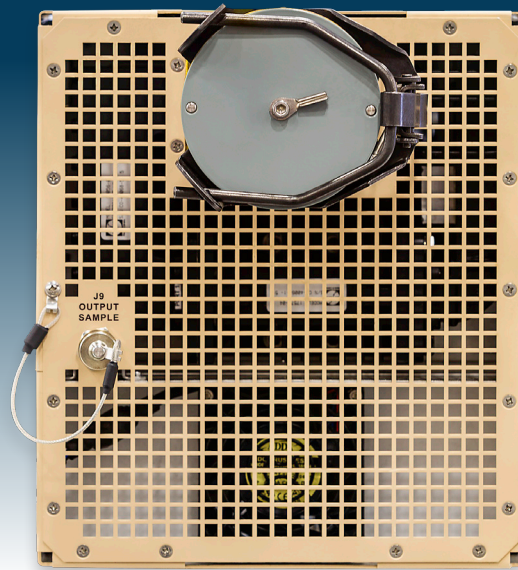


CS40500



Troposcatter C-Band Outdoor Amplifier | Model CS40500

Comtech's **CS40500** 500 W Solid State Power Amplifier (SSPA), operating from 4.4 GHz to 5.0 GHz, is Comtech's latest in our line of solid state power amplifiers. Using state-of-the-art GaN technology, the **CS40500** provides rated power of 500 W while maintaining the linearity required for Troposcatter applications. The **CS40500** is MIL STD 461 qualified and a sealed unit making it ideal for transportable and tactical applications. The **CS40500** is a state-of-the-art amplifier using power combining technology to produce a high power output from multiple stages.

The **CS40500** includes a graceful failure mode and contains automatic fault detection circuitry. This allows for a quicker diagnostic of the detected fault that occurred and helps expedite repair/replacement of the faulty component.

The **CS40500** comes with enhanced built-in features which other manufacturers offer as options, including temperature compensation, output sample port, forward and reverse power monitors, power factor corrected supply and full remote monitor & control (M&C) capabilities (including serial and Ethernet).



Greatly enhancing system maintainability, the **CS40500** includes built-in event history capability. By recording critical operational parameters (such as temperature, output power, mute status, etc.) at time stamped intervals, the user can quickly gather intelligence about not only the unit itself, but also its operational environment.

The **CS40500** is an integral component in the Comtech family of complete troposcatter terminals such as the TCT3000A-V1 and V2 (Tactical Communications Terminals), and the MTTs (Modular Transportable Troposcatter System).

CS40500 | Troposcatter C-Band Outdoor Amplifier

Technical Specifications

Performance	
Frequency Range	4.4 - 5.0 GHz
Instantaneous 3dB Bandwidth	600 MHz minimum
Amplifier Type	Class A or AB, Continuous Wave
Noise Figure (with RF Input Attenuator set for minimum attenuation)	18 dB maximum
Rated Output Power	57 dBm
Small Signal Gain (small signal with RF Input Attenuator set for minimum attenuation)	47.5 dB minimum
Gain Adjustment Range	10 dB min
Input Power Without Damage	+20 dBm, minimum
Gain Variation at rated power over 620 MHz	±1.6 dB maximum
Gain Variation at any output power over any 40 MHz bandwidth	±0.5 dB maximum
Gain Slope	±0.02 dB/MHz maximum
Gain Stability (constant drive and temperature) over 24 hours, -40°C to +60°C	±0.25 dB maximum/24 hours @ P _{Rated} (at +25°C) and ±0.75 dB over the temperature range
Input VSWR (with RF Input Attenuator set for minimum attenuation)	1.25:1 maximum (19.1 dB return loss)
Load VSWR (maximum allowable)	1.5:1 for specification compliance 2:1 with no damage (continuous)
AM to PM conversion	3.5°/dB at P _{Rated} - 1dB
Harmonic Output	2nd <-77 dBc or (<-20 dBm) 3rd <-77 dBc or (<-20 dBm) 4th and greater to 40 GHz: <-80 dBc
Phase Noise	(IESS 308/309) -10dB
Noise & Spurious	-70 dBc The sum of the fundamental and each harmonic component of the alternating (AC) line frequency shall not exceed -45 dBc
Intermodulation Products - each carrier set 6 dB below rated power	-17 dBc 3rd order IM products measured relative to either desired carrier at the RF output
Spectral re-growth @ QPSK +/- 1 to 1.5 Symbol Rate offset	-25 dBc minimum at any power up to 1 dB below rated output power
RF Inhibit Response Time	500 µsec

AC Power	
AC Voltage	180-264 VAC
Frequency	47 to 63 Hz
Power Consumption	2250 VA maximum @ 500 W output
EMI / EMC Conducted and Radiated	MIL-STD-461, CE102 - Conducted Emissions, Power Leads, 10 kHz to 10 MHz
	MIL-STD-461, CS114 - Conducted Susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz, for Army Ground Equipment
	MIL-STD-461, CS115 - Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation
	MIL-STD-461, CS116 - Conducted Susceptibility, Damped Sinusoidal Transients, Cables and Power Leads, 10 kHz to 100 MHz, for Army Ground Equipment
	MIL-STD-461, RE102 - Radiated Emissions, Electric Field, 10 kHz to 18 GHz, for Army Ground Equipment
	MIL-STD-461, CE106 Conducted Emissions, Antenna Terminal, 10 KHz to 40 GHz
	MIL-STD-461, RS103 - Radiated Susceptibility, Electric Field, 2 MHz to 18 GHz as per Army Ground limits of a radiated susceptibility field strength limit of up to 50V/m

Environmental & Physical	
Operating temperature	-40°F to 140°F (-40°C to 60°C)
Storage Temperature	-59°F to 167°F (-51°C to 75°C)
Humidity	0 to 100%, Condensing rain 2" per hour
Altitude Operating	10,000 ft (3,000 m) with standard adiabatic de-rating
Altitude Storage	45,932 ft (14,000 m)
Height	10.4 in. (26.4 cm)
Width	9.15 in. (23.2 cm)
Depth	23.3 in. (59.1 cm)
Weight	60 lb (27.2 kg)
Input Connector	Type-N, Female
Output Connector	Waveguide: Type CPR-187G, all threaded stainless steel inserts
50 dB RF Output Power Monitor Connector	Type-N, Female
Monitor and Control Connector	19 pin MS
AC Power Connector	3 Pin MS

Residual AM	
(In dB below rated single carrier output as measured in 4 kHz band)	
f ₀ to 4 kHz	-35 dBc minimum
4 kHz to 500 kHz	-20 (1.15 + log f), where f is in kHz
Above 500 kHz	-77 dBc maximum

Group Delay (in any 40 MHz Band)	
Linear	0.04 nanoseconds/MHz
Parabolic	0.005 nanoseconds/MHz ²
Ripple	1.0 nanoseconds peak to peak maximum



CS40500 in a transit case configuration

Specifications are subject to change